611-TD-601-001

EOSDIS Core System Project

M&O Procedures: Section 15—Quality Assurance

Interim Update

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Raytheon Systems Company
Upper Marlboro, Maryland

Preface

This document is an interim update to the Mission Operations Procedures Manual for the ECS Project, document number 611-CD-600-001. This document has not been submitted to NASA for approval, and should be considered unofficial.

This update has been prepared to improve the logical organization and format of the Archive Procedures and to incorporate additional revisions appropriate for Release 6A. It constitutes a complete rewriting of the Archive Procedures section.

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15. Quality Assurance

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15. Quality Assurance

This section describes the procedures for setting Quality Assurance flags in the metadata for science granules using the QA Monitor tool and the QA Metadata Update Tool (QAMUT).

Operational Quality Assessment is performed by DAAC operations personnel authorized to modify the value of the Operational QA flag attribute value for a product generated at the DAAC. The QA Monitor tool provides the capability to retrieve granules for viewing and to retrieve production history files. The QAMUT provides a tool for updating the QA metadata for multiple granules in a batch. Figure 15-1 provides an overview of the quality assurance process.

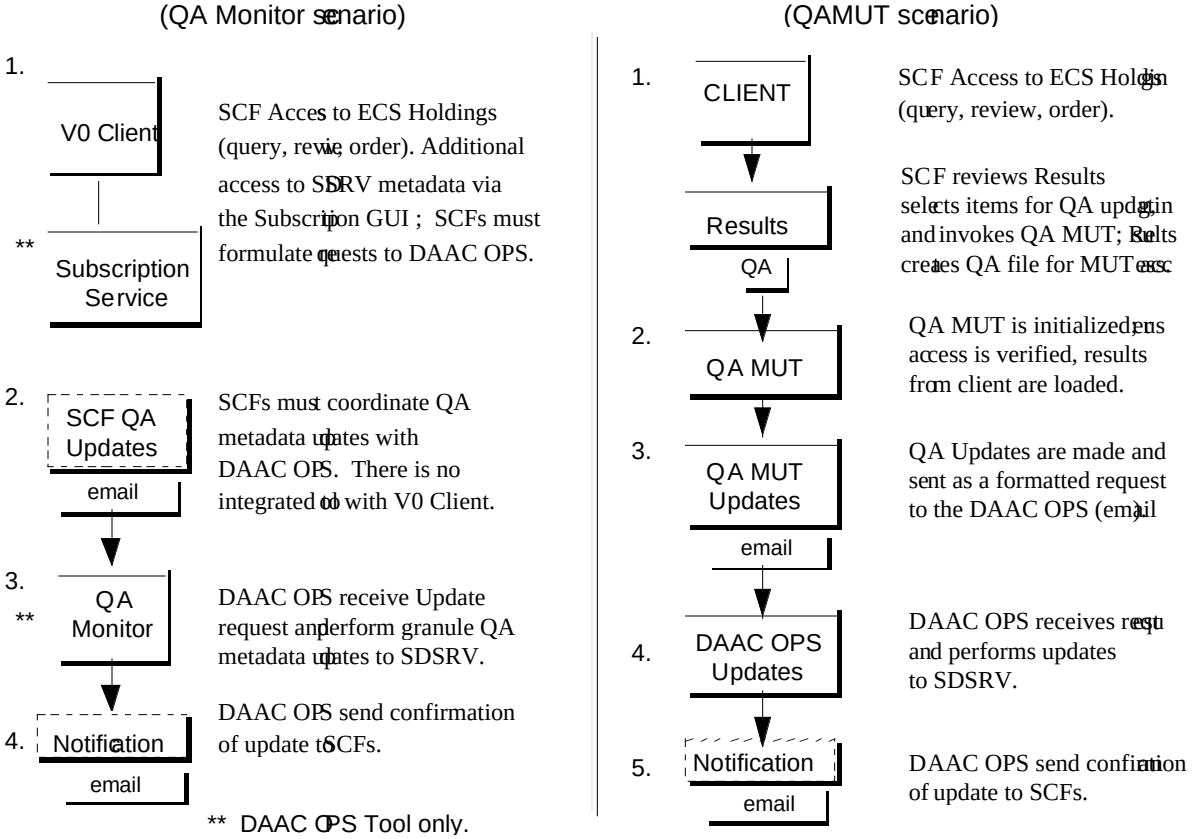

Figure 15-1. QA Metadata Update Process

Subsequent sections related to Quality Assurance address procedures for the following functions:

- Section 15.1 Using the QA Monitor.
- Section 15.2 Using the QA Metadata Update Tool.

For each set of functions, an **Activity Checklist** table provides an overview of the tasks to be completed. The outline of the Activity Checklist is as follows:

Column one - ***Order*** shows the order in which tasks could be accomplished.

Column two - ***Role*** lists the Role/Manager/Operator responsible for performing the task.

Column three -***Task*** provides a brief explanation of the task.

Column four - ***Section*** provides the Procedure (P) section number or Instruction (I) section number where details for performing the task can be found.

Column five - ***Complete?*** is used as a checklist to keep track of which task steps have been completed.

15.1 Using the QA Monitor

The purpose of the QA Monitor is to enable DAAC technicians to modify ScienceQualityFlag and OperationalQualityFlag attributes of core metadata for a granule, based either on a request from the Science Computing Facility (SCF) or on an operations review, respectively.

The QA Monitor can be used to request the Science Data Server to search for specific types of Data Granules; Query, Retrieve, and Update (QRU) Metadata; transfer Data Granules to the operator's computer; and transfer Production History to the operator's computer. It can also be used to update data granule metadata, view graphical images of data granules, and print/display lists of data granules and data types.
Table 15.1-1 provides an Activity Checklist for Using the QA Monitor.

Table 15.1-1. Using the QA Monitor - Activity Checklist

Order	Role	Task	Section	Complete?
1	Production Monitor	Launch the QA Monitor	(P) 15.1.1	
2	Production Monitor	Retrieve and View DAAC Product Using the QA Monitor	(P) 15.1.2	
3	Production Monitor	Update QA Metadata using the QA Monitor	(P) 15.1.3	
4	Production Monitor	Retrieve and View Production History	(P) 15.1.4	

15.1.1 Launch the QA Monitor

Table 15.1-2 presents the steps required to launch the QA Monitor. If you are already familiar with the procedure, you may prefer to use this quick-step table. If you are new to the system, or have not performed this task recently, you should use the following detailed procedure:

NOTE: Commands in Steps 1 through 7 are typed at a UNIX system prompt.

1 Type **setenv DISPLAY *clientname*:0.0** then press the **Return/Enter** key.

- Use either the X terminal/workstation IP address or the machine-name for the ***clientname***.
- When using secure shell, the DISPLAY variable is set just once, before logging in to remote hosts. If it were to be reset after logging in to a remote host, the security features would be compromised.

2 Start the log-in to the Planning/Management Workstation by typing **/tools/bin/ssh *hostname*** (e.g., **e0pls03**, **g0pls01**, or **l0pls02**) in the new window then press the **Return/Enter** key.

- If you receive the message, **Host key not found from the list of known hosts. Are you sure you want to continue connecting (yes/no)?** type **yes** ("**y**" alone will not work).
- If you have previously set up a secure shell passphrase and executed **sshremote**, a prompt to **Enter passphrase for RSA key '<*user@localhost*>'** appears; continue with Step 3.
- If you have not previously set up a secure shell passphrase; go to Step 4.

3 If a prompt to **Enter passphrase for RSA key '<*user@localhost*>'** appears, type your ***Passphrase*** then press the **Return/Enter** key.

- Go to Step 5.

4 At the **<*user@remotehost*>'s password:** prompt type your ***Password*** then press the **Return/Enter** key.

5 Type **setenv ECS_HOME /usr/ecs/** then press the **Return/Enter** key.

- When logging in as a system user (e.g., cmshared), the ECS_HOME variable may be set automatically so it may not be necessary to perform this step.

6 Type **cd /usr/ecs/*MODE*/CUSTOM/utilities** then press **Return/Enter**.

- Change directory to the directory containing the QA Monitor start script (e.g., EcDpPrQaMonitorGUIStart).
- The ***MODE*** will most likely be one of the following operating modes:
  - OPS (for normal operation).
  - TS1 (for SSI&T).
  - TS2 (new version checkout).
- Note that the separate subdirectories under /usr/ecs apply to (describe) different operating modes.

7 Type **EcDpPrQaMonitorGUIStart *MODE*** then press **Return/Enter** to launch the **QA Monitor** GUI.

- The **QA Monitor** GUI is displayed.

Table 15.1-2. Launch the QA Monitor

Step	What to Do	Action to Take
1	**setenv DISPLAY *clientname*:0.0**	enter text; press **Return/Enter**
2	**/tools/bin/ssh *hostname***	enter text; press **Return/Enter**
3	***Passphrase*** (or Step 4)	enter text; press **Return/Enter**
4	***Password***	enter text; press **Return/Enter**
5	**setenv ECS_HOME /usr/ecs/**	enter text; press **Return/Enter**
6	**cd /usr/ecs/<*MODE*>/CUSTOM/utilities**	enter text; press **Return/Enter**
7	**EcDpPrQaMonitorGUIStart <*MODE*>**	enter text; press **Return/Enter**

15.1.2 Retrieve and View DAAC Product Using the QA Monitor

The QA process begins with launching the QA Monitor application. The DAAC operations personnel query the Science Data Server database for the selected products, retrieve those specific products and perform a visual check using the Visualize Data option of QA Monitor.

Table 15.1-3 presents the steps required to query, retrieve and view data granules. If you are already familiar with the procedure, you may prefer to use this quick-step table. If you are new to the system, or have not performed this task recently, you should use the following detailed procedure.

1 Launch the QA Monitor GUI (refer to Procedure 15.1.1 **Launch the QA Monitor**).

2 Click on the **QRU data** tab (if it is not already selected).

- The **QRU data** window is displayed on the GUI.

3 In the **Data Types** field, click on the data type to be checked.

- It may be necessary to scroll through the **Data Types** list.
- The selected data type is highlighted.
- Only one data type can be selected at a time.
- Alternatively, the **Find** field and button can be used for specifying a data type.
  - The **Find** field is case-sensitive.

4 Click in the appropriate **Data Granule Insert** window field(s) and either type or use the up/down arrow buttons to enter the **Begin** date and **End** date in ***MM/DD/YYYY*** format.

- In the **Data Granule Insert** window it is necessary to specify the range of dates (between the **Begin** date and the **End** date) to formulate a query for searching for the desired granule(s) to be checked.
- Time is based upon day of insert into the data server. If no dates are entered, an error message is displayed.
- The up and down arrows next to the duration fields may be used for modifying entries in each field.
- The **Tab** key may be used to move from field to field.

5 Click on the **Query** button.

- Granules within the specified date range appear in the **Data Granules** field.

6 In the **Data Granules** field, click on the granule to be retrieved.

- It may be necessary to scroll through the list of granules.
- The selected granule is highlighted.
- Alternatively, the **Find** field and button may be used for specifying a data granule.
  - The **Find** field is case-sensitive.

7 Click on the **Retrieve DataGranule** button.

- The Status field displays a message **. . . Acquiring Science Data granule . . .**, and upon completion of the acquire, the GUI becomes active again.

8 Click on the **Visualize data** tab.

- The **Visualize data** window is displayed on the GUI with a **Filter** field at the top showing the path for location of the acquired science data granule, a **Directory** field listing directories on the host, and a **Files** field listing files in the selected path.

9 Click on the file to be viewed

- The selection is highlighted.

10 To visualize the selected data granule, click on the **Visualize** button.

- The **EOS View** GUI is displayed in a separate window.
- ***Note***: The EOSView GUI requires operator input to produce a graphical image of the science data file. The EOSView GUI can only read data products that are in HDF format.

11 To open the HDF product file from which to view metadata, select the **File→Open** button from the main menu bar.

- A **File Selection Dialog** window opens and the operator is able to select the appropriate directory and file to open.
- Once the desired product file has been opened, the specific types of HDF objects in the file is listed in the **Contents** window.

12 In the **Contents** window, double-click on a particular HDF Object (e.g., **Vgroup**, **SDS**).

- The structure of the HDF object appears in a dialog window with buttons on the bottom portion of the window to view the data of the object itself.

13 Display the science data values of this particular HDF object by selecting the **Table** button to display the table data of the object.

- The values are listed.

14 View the attribute values of this particular HDF object by selecting the **Attributes** button.

- Metadata is referred to as **attribute data.**
- Any metadata associated with the object is displayed in another text window.

15 To quit when done, type **Q** then press the **Return/Enter** key.

Table 15.1-3. Retrieving and Viewing Data Granules

Step	What to Do	Action to Take
1	Launch the **QA Monitor**	Use Procedure 15.1.1
2	Select the **QRU data** tab (if necessary)	**single-click**
3	In the **Data Types** field, select the data type	**single-click**
4	Move cursor to appropriate **Data Granule Insert** field(s) and enter **Begin** date and **End** date	**click** and enter text or set date(s) using up/down arrow buttons
5	Activate the **Query** button	**single-click**
6	In the **Data Granules** field, highlight the granule to be retrieved	**single-click**
7	Activate the **Retrieve DataGranule** button	**single-click**
8	Select the **Visualize data** tab	**single-click**
9	In the **Files** list, highlight the file to be viewed	**single-click**
10	Activate the **Visualize** button	**single-click**
11	Open the HDF product file from which to view metadata	Follow menu path **File→Open**
12	From the **Contents** window, display the information categories for the HDF object	**double-click**
13	To display the table of science data values for the HDF object, activate the **Table** button	**single-click**
14	To display the attribute values for the HDF object, activate the **Attributes** button	**single-click**
15	To quit, enter **Q**	enter text; press **Return/Enter**

15.1.3 Update QA Metadata

After viewing the Data Granules, the operator will update the Operational QA flag for that specific product as appropriate. The operator also updates the Science QA flags in response to an email request from SCF personnel, who have the responsibility for performing QA of their own products.

This procedure for updating QA metadata starts with the assumption that all applicable servers are currently running and the **QA Monitor** GUI **QRU data** tab is being displayed.

Table 15.1-4 summarizes the QA metadata attributes and their descriptions.

Table 15.1-4. QA Metadata Attributes

Field Name	Data Type	Description
OperationalQualityFlag ScienceQualityFlag	character	DAAC and SCF quality status setting of a data granule parameter, selected by the user. The valid values are: - passed - failed - being investigated - not investigated - inferred passed - inferred failed
OperationalQualityFlagExplanation ScienceQualityFlagExplanation	character	Text describing quality status (less than 255 characters), input by user.
AutomaticQualityFlag	character	DAAC and SCF quality status setting of a data granule parameter, set during data processing.
AutomaticQualityFlagExplanation	character	Text describing quality status of a data granule parameter - set during data processing.

Table 15.1-5 presents the steps required to update QA Flags using the QA Monitor. If you are already familiar with the procedure, you may prefer to use this quick-step table. If you are new to the system, or have not performed this task recently, you should use the following detailed procedure:

1 In the **Data Types** field, click on the data type to be checked.

- It may be necessary to scroll through the **Data Types** list.
- The selected data type is highlighted.
- Only one data type can be selected at a time.
- Alternatively, the **Find** field and button can be used for specifying a data type.
  - The **Find** field is case-sensitive.

2 Click in the appropriate **Data Granule Insert** window field(s) and either type or use the up/down arrow buttons to enter the **Begin** date and **End** date in ***MM/DD/YYYY*** format.

- In the **Data Granule Insert** window it is necessary to specify the range of dates (between the **Begin** date and the **End** date) to formulate a query for searching for the desired granule(s) to be checked.
- Time is based upon day of insert into the data server. If no dates are entered, an error message is displayed.
- The up and down arrows next to the duration fields may be used for modifying entries in each field.
- The **Tab** key may be used to move from field to field.

3 Click on the **Query** button.

- Granules within the specified date range appear in the **Data Granules** field.

4 In the **Data Granules** field, click on the granule for which metadata are to be updated.

- It may be necessary to scroll through the list of granules.
- The selected granule is highlighted.
- Alternatively, the **Find** field and button may be used for specifying a data granule.
  - The **Find** field is case-sensitive.

5 Click on the **Update Metadata** button.

- The **Granule Parameters** window is displayed.
- The **Granule Parameters** window displays one line for each parameter for the selected granule.

6 In the **Granule Parameters** window click on a parameter for which the metadata are to be updated.

- The **Update Meta Data** window is displayed.

7 Click and hold on the **Operational QA Flag** option button, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The selected metadata flag is displayed on the **Operational QA Flag** option button.
- The following options are available:
  - **Passed.**
  - **Failed.**
  - **Being Investigated.**
  - **Not Being Investigated.**

8 Click in the **Explanation** field and type an explanation of the QA flag selection.

9 If the SCF has specified that the SCF Quality Flag should be set to a particular value, click and hold on the **SCF Quality Flag** option button, move the mouse cursor to the SCF-specified selection (highlighting it), then release the mouse button.

- The selected metadata flag is displayed on the **SCF Quality Flag** option button.
- The same options are available as those on the **Operational Quality Flag** option button.

10 Click in the **Explanation** field and type an explanation of the QA flag selection.

NOTE: The **Auto Quality Flag** option button should not be accessible.

11 When the QA flags have been set with the desired values, click on the **OK** button.

- The settings are accepted and the **Update Meta Data** window is dismissed.
- To cancel the settings and dismiss the **Update Meta Data** window click on the **Cancel** button.
- The **Granule Parameters** window is displayed.

12 Observe the entries in the **Granule Parameters** window to verify that the QA flag settings have actually been applied to the granule.

- The QA flag values and explanations entered using the **Update Meta Data** window are displayed.
- Repeat Steps 6 through 11 as necessary to revise the QA metadata for the granule parameter.

13 Repeat Steps 6 through 12 to update the QA metadata for any additional granule parameters.

14 When the QA flags for all relevant parameters have been set with the desired values and verified, click on the **OK** button in the **Granule Parameters** window.

- The **Granule Parameters** window is dismissed.
- The directory for visualizing data retrieved from the archive is as follows: **/usr/ecs/<*MODE*>/CUSTOM/data/DPS**.

Table 15.1-5. Updating Quality Assurance (QA) Metadata using the QA Monitor

Step	What to Do	Action to Take
1	With the QA Monitor GUI open and the **QRU data** tab displayed, in the **Data Types** field, select the data type	**single-click**
2	Move cursor to appropriate **Data Granule Insert** field(s) and enter **Begin** date and **End** date	**click** and enter text or set date(s) using up/down arrow buttons
3	Activate the **Query** button	**single-click**
4	In the **Data Granules** field, highlight the granule for which metadata are to be updated	**single-click**
5	Activate the **Update Metadata** button	**single-click**
6	In the **Granule Parameters** window, select a parameter for which the metadata are to be updated	**single-click**
7	Use the **Operational QA Flag** option button to select the desired QA flag option	**click and drag** to select option
8	Move the cursor to the **Explanation** field and type an explanation for the QA flag selection	**click**; enter text
9	To set an SCF Quality Flag, Use the **SCF Quality Flag** option button to select the desired QA flag option	**click and drag** to select option
10	Move the cursor to the **Explanation** field and type an explanation for the QA flag selection	**click**; enter text
11	Activate the **OK** button	**single-click**
12	In the **Granule Parameters** window, verify that the QA flag settings have actually been applied to the granule	read text
13	Repeat Steps 6 - 12 to update the QA metadata for any additional granule parameters	
14	In the **Granule Parameters** window, activate the **OK** button	**single-click**

15.1.4 Retrieve and View Production History

The Production History (PH) is created during PGE execution within the Planning and Data Processing Subsystems (PDPS) and then Inserted into the Data Server upon PGE completion. Included in the PH are the PGE log files. Accessing a Production History associated with a particular PGE run requires the DPR ID of the PGE run.

Table 15.1-6 presents the steps required to query, retrieve and view Production History granules. If you are already familiar with the procedure, you may prefer to use this quick-step table. If you

are new to the system, or have not performed this task recently, you should use the following detailed procedure.

1 Launch the QA Monitor GUI (refer to Procedure 15.1.1 **Launch the QA Monitor**).

2 Click on the **QRU data** tab (if it is not already selected).

- The **QRU data** window is displayed on the GUI.

3 In the **Data Types** field, click on the data type for the Production History to be retrieved.

- It may be necessary to scroll through the **Data Types** list.
- The selected data type is highlighted.
- Only one data type can be selected at a time.
- Alternatively, the **Find** field and button can be used for specifying a data type.
  - The **Find** field is case-sensitive.

4 Click in the appropriate **Data Granule Insert** window field(s) and either type or use the up/down arrow buttons to enter the **Begin** date and **End** date in ***MM/DD/YYYY*** format.

- In the **Data Granule Insert** window it is necessary to specify the range of dates (between the **Begin** date and the **End** date) to formulate a query for searching for the desired granule(s) to be checked. In retrieving a granule's Production History, use **Begin** date and **End** date values that encompass the granule's RangeBeginningDateTime and RangeEndingDateTime.
- Time is based upon day of insert into the data server. If no dates are entered, an error message is displayed.
- The up and down arrows next to the duration fields may be used for modifying entries in each field.
- The **Tab** key may be used to move from field to field.

5 Click on the **Query** button.

- Granules within the specified date range appear in the **Data Granules** field.
- For each granule that meets the query conditions and is displayed in the **Data Granules** field, the granule's UR, its Production History tar file's UR, and the name of the Production History tar file are shown.

6 In the **Data Granules** field, click on the granule for which the Production History is to be retrieved.

- It may be necessary to scroll through the list of granules.
- The selected granule is highlighted.
- Alternatively, the **Find** field and button may be used for specifying a data granule.
  - The **Find** field is case-sensitive.

7 Click on the **Retrieve ProdHistory** button.

- The Status field displays a message **. . . Acquiring Production History granule . . .**, and upon completion of the acquire, the GUI becomes active again.
- The Production History tar file is acquired to a directory that is configurable.
  - The name of the configuration parameter is **DpPrQA_DATA_DIR**.
  - The default value for the parameter is **$ECS_HOME/<*MODE*>/CUSTOM/data/DPS**.

8 In a UNIX window, to change to the directory containing the Production History granule, type **cd /usr/ecs/<*MODE*>/CUSTOM/data/DPS** and then press the **Return/Enter** key.

- The working directory is changed to **/usr/ecs/<*MODE*>/CUSTOM/data/DPS**.

9 To extract the files from the Production History granule (tar file), type the command:

tar -xvf *tarfilename*

and then press the **Return/Enter** key.

- The tar function lists its actions as the files are extracted.

10 View any desired file(s) using an available viewer or editor program (e.g., **view**, **pg**, **vi**).

Table 15.1-6. Retrieving and Viewing Production History

Step	What to Do	Action to Take
1	Launch the **QA Monitor**	Use Procedure 15.1.1
2	Select the **QRU data** tab (if necessary)	**single-click**
3	In the **Data Types** field, select the data type	**single-click**
4	Move cursor to appropriate **Data Granule Insert** field(s) and enter **Begin** date and **End** date	**click** and enter text or set date(s) using up/down arrow buttons
5	Activate the **Query** button	**single-click**
6	In the **Data Granules** field, highlight the granule for which the Production History is to be retrieved	**single-click**
7	Activate the **Retrieve ProdHistory** button	**single-click**
8	In a UNIX window, **cd /usr/ecs/<*MODE*>CUSTOM/data/DPS**	enter text; press **Return/Enter**
9	**tar -xvf *tarfilename***	enter text; press **Return/Enter**
10	View desired file(s)	use viewer/editor program

15.2 Using the QA Metadata Update Tool

The QA Metadata Update Tool (QAMUT) is an operational support tool used for updating the values of the Quality Assessment (QA) flags in the ECS inventory metadata in the Science Data Server database. The QAMUT sets QA values for data granules containing one or more measured parameters after they have been assessed by Science Computing Facility (SCF) or DAAC staff to determine their quality.

The QAMUT is used to update the Science and Operational QA flags and the corresponding fields only.

QA flags can have the following values:

- Passed.
- Failed.
- Being Investigated.
- Not Investigated.
- Inferred Passed.
- Inferred Failed.
- Suspect
- Hold

During one run the QAMUT can update the metadata QA flags for multiple granules. In fact, the strength of the tool derives from its ability to update batches of granules at a time. This is in contrast to the QA Monitor GUI, which can be used to update the QA flags for just one granule at a time. There is no set limit on the number of granules that may be specified for a run. In fact, depending on how frequently the originators of requests for QA flag updates submit their requests, the DAAC may receive requests for updates of thousands of granules at a time. However, this creates the potential for extreme database loading (e.g., requirements for temporary storage of granule information). Specific practical limits may depend on individual site capacities and requirements, and the DAAC may need to work with the originators of requests to formulate requests of appropriate size to minimize QAMUT processing times and associated database impacts. In practice, it is likely that requests should be kept to updates for no more than 10,000 granules at a time. If a request is for significantly more than that, consideration should be given to breaking it up into multiple requests.

The granules with QA flags to be updated using the QAMUT may each contain several different measured parameters. The tool can update the QA flag associated with each parameter for each granule listed in a metadata update request. Updates for different measured parameters related to a particular granule may be grouped contiguously on separate lines in the request so that all the updates for the granule are accomplished at the same time.

The input needed to run the QAMUT is a uniformly formatted update request. SCF personnel typically send their metadata update requests to the DAAC by e-mail. Each update request contains an e-mail header (including the requester's return address) and a list of the granules to be updated, along with the new QA flag values for the specified parameters.

The body of the request starts with the statement "begin QAMetadataUpdate <Science or Operational> <LGID, GranuleUR or ESDT>". The body ends with an "end QAMetadataUpdate" statement. Each request can be based on 3 possible origins: LGID, GranuleUR, or ESDT with temporal range. In between is at least one parameter/QA value statement with the following components (which are separated by tabs):

- Short Name
- Version ID
- LGID, GranuleUR, or Range Beginning Date <tab> Range Ending date
- Measured Parameter Name/ALL

- QA Flag Value
- QA Flag Explanation Value

Each parameter/QA value statement starts on a new line.

The example in Figure 15-2 is an ESDT type of change and has four statements requesting science QA flag updates to parameters associated with four different granules. All are to be set to "Passed" based on a Performance Test.

This information must be properly arranged and placed in the SDSRV database (a designated directory or file).

Once a request to update the metadata has been received, the correctly formatted information must be saved to the designated directory or file. Once the data has been copied to this directory, the metadata can be updated by using QAMUT (see procedure 15.2.3).

The QAMUT has been designed to run independently of the SDSRV process. The system directly updates the inventory metadata database instead of going through the SDSRV services to update the database. The QAMUT is accessible on the SDSRV Server database host (e.g., e0acg11, g0acg01, l0acg02, n0acg01).

The QAMUT includes three scripts:

EcDsQAMUT.pl -- the main script that does the update.

EcDsQAMUTBcp.pl -- an assistant script that helps the DAAC load the DsQAMUTESDTSite table in the SDSRV database with information about the sites and the related ESDTs each site may request to have updated.

EcDsQAMUTEmailScript.pl -- a script generated by EcDsQAMUTEmailScriptMkcfg and used to direct the email QAMUT update requests to the proper request directories.

```
begin QAMetadataUpdate Science ESDT

DFLAXENG 1 May 27 1999 9:00:00:000PM May 28 1999 9:00:00:000PM ALL S Passed SDT Perf Test
DFLAXLSM 1 May 27 1999 9:00:00:000PM May 28 1999 9:00:00:000PM ALL S Passed SDT Perf Test
DFLAXSTR 1 May 27 1999 9:00:00:000PM May 28 1999 9:00:00:000PM ALL S Passed SDT Perf Test
DFLAXMIS 1 May 28 1999 12:00:00:000AM May 28 1999 9:00:00:000PM ALL S Passed SDT Perf Test
End QA Metadata Update Science ESDT
```

Figure 15-2. Sample Metadata QA Update Request

Table 15.2-1 provides an Activity Checklist for Using the QAMUT.

Table 15.2-1. Using the QAMUT - Activity Checklist

Order	Role	Task	Section	Complete?
1	System Administrator/ Database Administrator	Configure the QAMUT	(P) 15.2.1	
2	Production Monitor	Populate DsQAMUTESDTSite Table	(P) 15.2.2	

3	Production Monitor	Update QA Metadata Flags Using QAMUT	(P) 15.2.3	

15.2.1 Configure QAMUT

There are two configuration files developed for the QAMUT. These files are always developed as part of at the installation or when new ESDTs are added to the system. The site installer or Database Administrator is responsible for maintaining these files.

The first configuration file, used by the DAAC operator, contains a mapping of ESDT names and SCF sites. This file is a configurable data file that must be created and maintained by the operator, using an available editor (e.g., **vi**), in order to populate DsQAMUTESDTSite table in the SDSRV database using **EcDsQAMUTBcp.pl**. The file may be named appropriately by the operator when it is created (e.g., **bcpfile**). This file must use the following format:

<ESDTShortName><tab><SITEName>

Repeat this format for each SCF Site and all the ESDTs it can update. Note, no blank line is allowed in the file.

The second configuration file, used by the QAMUT, is called **EcDsQAMUT.CFG**. It contains details about how to connect to the Sybase database as well as DAAC specific information. Without this file, the utility can not run. The configuration file must be a single entry plain text ASCII file which has the following format:

SYB_USER = <string>
SYB_SQL_SERVER = <string>
SYB_DBNAME = <string>
SYB_PASSWD =<string>
NUM_RETRIES = <number
SLEEP_SEC <integer>

QAMUTRequestDIR = <string>
QAMUTCompleteRequestDir = <string>
QAMUTErrRequestDir = <string>
QAMUTUndoRequestDir = <string>
MAILX = <string>

<SCFSite>_FromAddress = <string1,string2,string3…>
…(repeat for each site)

<SCFSite>_ReplyAddress = <string1>
…(repeat for each site)

DAACAddresses=<string1,string2,string3>

<SCF>_Notification={Y/N}
…(repeat for each site)

VALIDQAFLAG = <string> value1,value2,value3,value4,value5,value6,value7,value8
MAX_NUM_GRANULES = <integer>
UpdateBatchSite = <integer>

Table 15.2-2 lists these configuration parameters and provides a brief description of each.

Table 15.2-2. Configuration File Parameters for QAMUT

Parameter Name	Description
SYB_USER	The user name for the Sybase connection.
SYB_SQL_SERVER	The name of the SQL sever for this Sybase connection.
SYB_DBNAME	The name of the database you intend to connect to
SYB_PASSWD	Program ID used to get Sybase password through a decryption program called EcDsDcrp.
NUM_RETRIES	The maximum number of times the utility will try to connect to the database or retry deadlock. The recommended default is 5.
SLEEP_SEC	The number of seconds the utility will wait ('sleep') between connect. Recommended default is 10.
QAMUTRequestDir	The directory where all the QAMUT update request files reside
QAMUTCompleteRequestDir	The directory where all the completed QAMUT update request files reside.
QAMUTErrRequestDir	The directory where all the QAMUT update requests with non retryable errors reside
QAMUTUndoRequestDir	The directory where all the information required to undo each request is stored in the same filename as the original request. If a request is run multiple times due to recoverable errors, there will be multiple
MAILX	The command including the full path for "mailx"
<SCFSite>_FromAddresses	Each SCF site can have multiple From email addresses separated by ",". These email address are used for authentication as well as email addresses for QAMUT to send notification back
<SCFSite>_ReplyAddress	Each SCF site can have 0 to 1 Reply-To address. Enter nothing after the "=" sign if the site doesn't have any Reply-To address. This address is used for email notification.

Table 15.2-2 (continued). Configuration File Parameters for QAMUT

DAACAddresses	A list of internal DAAC e-mail addresses separated by "," to which email notification are Copied upon completion of a QA update run. The completion means finishes without retryable errors--internal errors in the DAAC.
<SCFSite>_Notification	Email notifications are sent in the following situations: 1. Authentication failure. 2. ESDT update not allowed. 3. Format errors of the request 4. Non retryable errors in the request and no retryable errors occurred (QAMUT reprocesses the request until it overcomes all the retryable errors before notifying the requester of the non retryable errors) 5. Successful completion. This is when the Notification option makes the difference. If "Y", a notification will be sent upon successful completion, otherwise no notification will be sent.
VALIDQAFLAGs	Contains 8 valid values separated by ","
MAX_NUM_GRANULES	Contains the DAAC configurable maximum threshold
UpdateBatchSize	The number of granules the utility will update in a batch.

Table 15.2-3 presents the steps required to configure the QAMUT. If you are already familiar with the procedure, you may prefer to use this quick-step table. If you are new to the system, or have not performed this task recently, you should use the following detailed procedure.

1 Log into the host for the SDSRV database (e.g., e0acg11, g0acg01, l0acg02, n0acg01).

2 To change to the directory for configuration files, type the command:

cd /usr/ecs/<*MODE*>/CUSTOM/cfg

and then press the **Return/Enter** key.

- The working directory is changed to **/usr/ecs/<*MODE*>/CUSTOM/cfg**.

3 To start the **vi** editor and specify **bcpfile** as the name of the configuration file for mapping ESDT names and sites, type the command:

vi bcpfile

- A new file is opened for editing, or, if a file named **bcpfile** already exists, the contents of the file are displayed, and the cursor is displayed on the first character at the upper left corner of the file.
- ***Note***: This procedure assumes use of the **vi** editor and naming of the file **bcpfile**. Other editors may be used, and the file may be given a different name.

4 If necessary, use the down arrow key on the keyboard to move the cursor down to a blank line.

- The cursor is displayed at the beginning of the selected line.

5 Type **i** to put the **vi** editor into the insert mode.

- The **vi** editor is in the insert mode, but no feedback is provided.

6 Enter data listing ESDTs and sites, one ESDT - site pair per line and the ESDT and site separated by a tab, with no blank lines, in the following format:

<*ESDTShortName*><tab><*SITEName*>

.
.
.

- Continue until all ESDTs that may be updated by each site are entered. ***Note***: To facilitate this data entry, it may be desirable to obtain lists from the SDSRV database using **isql** and copy the information into the file

7 To leave the insert mode and return to the command mode, press the **Esc** key.

- The cursor moves one character to the left and the **vi** editor is in the command mode.

8 Type **ZZ** to save the file and exit the **vi** editor.

9 To start the **vi** editor and specify **EcDsQAMUT.CFG** as the name of the configuration file to be used by QAMUT, type the command:

vi EcDsQAMUT.CFG

- A new file is opened for editing and the cursor is displayed on the first character at the upper left corner of the file.
- ***Note***: This procedure assumes use of the **vi** editor. Other editors may be used.

10 Type **i** to put the **vi** editor into the insert mode.

- The **vi** editor is in the insert mode, but no feedback is provided.

11 Enter data to specify how to connect to the Sybase database and provide necessary DAAC-specific configuration information (see Table 15.2-2).

12 To leave the insert mode and return to the command mode, press the **Esc** key.

- The cursor moves one character to the left and the **vi** editor is in the command mode.

13 Type **ZZ** to save the file and exit the **vi** editor.

Table 15.2-3. Configure QAMUT

Step	What to Do	Action to Take
1	Log in at the host for the SDSRV database	enter text; press **Return/Enter**
2	**cd /usr/ecs/<*MODE*>/CUSTOM/cfg**	enter text; press **Return/Enter**
3	**vi bcpfile**	enter text; press **Return/Enter**
4	If necessary, use **down arrow key** to move cursor to a blank line	press arrow key on keyboard
5	To put **vi editor** in **insert** mode, type **i**	enter text command
6	Enter data listing ESDTs and sites	enter text (or copy data)
7	To put **vi editor** in **command** mode, press **Esc** key	press **Esc** key on keyboard
8	Exit **vi editor** with **ZZ**	enter text; press **Return/Enter**
9	**vi EcDsQAMUT.CFG**	enter text; press **Return/Enter**
10	To put **vi editor** in **insert** mode, type **i**	enter text command
11	Enter data for QAMUT configuration	enter text (or copy data)
12	To put **vi editor** in **command** mode, press **Esc** key	press **Esc** key on keyboard
13	Exit **vi editor** with **ZZ**	enter text; press **Return/Enter**

15.2.2 Populate DsQAMUTESDTSite Table

Table 15.2-4 presents the steps required to populate the DsQAMUTESDTSite table in the SDSRV database. If you are already familiar with the procedure, you may prefer to use this quick-step table. If you are new to the system, or have not performed this task recently, you should use the following detailed procedure.

1 Log into the host for the SDSRV database (e.g., e0acg11, g0acg01, l0acg02, n0acg01).

2 To change to the directory containing the QAMUT scripts, type the command:

cd /usr/ecs/<*MODE*>CUSTOM/utilities

and then press the **Return/Enter** key.

- The working directory is changed to **/usr/ecs/<*MODE*>CUSTOM/utilities**.

3 Type **EcDsQAMUTBcp.pl <*MODE*> *filename***.

- In the command, ***filename*** is the name of the configuration file containing the mapping of ESDTs and sites (e.g., **bcpfile**).
- The contents in the DsQAMUTESDTSite table in the SDSRV database are replaced with the content in the named file (e.g., **bcpfile**). Before the replacement, the current content of the table is saved in a file called DsQAMUTESDTSite.out in the directory **/usr/ecs/<*MODE*>/CUSTOM/data/DSS/QAMUT/QAMUTUndo**.
- ***Note***: The script completely replaces the content of the DsQAMUTESDTSite table; it does not merely append data. Therefore, to update the table, the entire desired content of the table must be reflected in the configuration file (e.g., **bcpfile**).

Table 15.2-4. Populate DsQAMUTESDTSite Table

Step	What to Do	Action to Take
1	Log in at the host for the SDSRV database	enter text; press **Return/Enter**
2	**cd /usr/ecs/<*MODE*>/CUSTOM/utilities**	enter text; press **Return/Enter**
3	**EcDsQAMUTBcp.pl <*MODE*> *filename*** (e.g., **bcpfile**)	enter text; press **Return/Enter**

15.2.3 Update QA Metadata Flags Using QAMUT

Access to the QAMUT must be gained through the use of UNIX commands. The process of updating QA metadata flags using the QAMUT start-up scripts starts with the following assumptions:

- The applicable servers are running.
- The DAAC operator has logged in to the ECS system.
- A request for metadata update has been received in an acceptable format, such as that shown in Figure 15-2.
- The update request has been saved with the appropriate file name (i.e., **QAupdate_science.txt** or **QAupdate_operational.txt** as the case may be) in the **/usr/ecs/*MODE*/CUSTOM/utilities** subdirectory on the SDSRV database host (e.g., e0acg11, g0acg01, l0acg02, n0acg01).

Table 15.2-5 presents the steps required to update QA Metadata Flags using the QAMUT. If you are already familiar with the procedure, you may prefer to use this quick-step table. If you are new to the system, or have not performed this task recently, you should use the following detailed procedure:

1 At a UNIX system prompt type **setenv DISPLAY clientname:0.0**

- Use either the X terminal/workstation IP address or the machine-name for the ***clientname***.
- When using secure shell, the **DISPLAY** variable is set just once, before logging in to remote hosts. If it were to be reset after logging in to a remote host, the security features would be compromised.

2 Start the log-in to the SDSRV database host by entering **/tools/bin/ssh *hostname*** (e.g., e0acg11, g0acg01, l0acg02, n0acg01) then pressing the Return/Enter key.

- If you receive the message, **Host key not found from the list of known hosts. Are you sure you want to continue connecting (yes/no)?** type **yes** ("**y**" alone will not work).
- If you have previously set up a secure shell passphrase and executed **sshremote**, a prompt to **Enter passphrase for RSA key '<*user@localhost*>'** appears; continue with Step 3.
- If you have not previously set up a secure shell passphrase, go to Step 4.

3 If a prompt to **Enter passphrase** for RSA key '<user@localhost>' appears, type your **Passphrase** then press the **Return/Enter** key.

- Go to Step 5.

4 At the <user@remotehost>'s password: prompt type your **Password** then press the **Return/Enter** key.

5 Type **cd /usr/ecs/<*MODE*>/CUSTOM/utilities** then press the **Return/Enter** key.

- Change directory to the directory containing the ECS custom software start-up scripts for the applicable mode.
- The **<*MODE*>** will most likely be one of the following operating modes:
  - OPS (for normal operation).
  - TS1 (for SSI&T).
  - TS2 (new version checkout).

6 Type **ls** then press the **Return/Enter** key.

- The monitor displays a list of the files in the **/usr/ecs/<*MODE*>/CUSTOM/utilities** directory.

7 Type one of the following command line entries and then press the **Return/Enter** key:

- **EcDsQAMUT.pl <*MODE*>**
  - This command processes data from the designated directory and displays detailed information to the operator about granules as they are updated. The operator is asked for a confirmation before the update. The utility exits the request when the first error occurs.
- **EcDsQAMUT.pl <*MODE* > -noprompt**
  - This command processes data from the designated directory but does not display detailed information to the operator about granules as they are updated. The operator is not asked for a confirmation before the update. The utility exits the request when the first error occurs.
- **EcDsQAMUT.pl <*MODE*> -noexitonerr**
  - This command processes data from the designated directory and displays detailed information to the operator about granules as they are updated. The operator is asked for a confirmation before the update. The utility continues processing when an error occurs.

- **EcDsQAMUT.pl <*MODE*> -file <*filename*>**
  - This command processes data from the designated file and displays detailed information to the operator about granules as they are updated. The operator is asked for a confirmation before the update. The utility exits the request when the first error occurs.
- **EcDsQAMUT.pl <*MODE* > -file <*filename*> -noprompt**
  - This command processes data from the designated file but does not display detailed information to the operator about granules as they are updated. The operator is not asked for a confirmation before the update. The utility exits the request when the first error occurs.
- **EcDsQAMUT.pl <*MODE*> -file <*filename*> -noexitonerr**
  - This command processes data from the designated file and displays detailed information to the operator about granules as they are updated. The operator is asked for a confirmation before the update. The utility continues processing when an error occurs.
- **EcDsQAMUT.pl <*MODE* > -file <*filename*> -noprompt**
  - This command processes data from the designated file but does not display detailed information to the operator about granules as they are updated. The operator is not asked for a confirmation before the update. The utility continues processing when an error occurs.

8 If an additional request is to be processed, copy the request message into the utilities subdirectory with the appropriate file name.

- For example:
  cp /home/allmode/mail/ScienceUpdateRequest
  /usr/ecs/<*MODE*>/CUSTOM/utilities/QAupdate_<*science/operational*>.txt

9 Repeat Steps 7 and 8 as necessary to process additional requests for QA metadata update.

Table 15.2-5. Updating QA Metadata Flags Using the QAMUT

Step	What to Do	Action to Take
1	**setenv DISPLAY *clientname*:0.0**	enter text; press **Return/Enter**
2	**/tools/bin/ssh *hostname***	enter text; press **Return/Enter**
3	***Passphrase*** (or Step 4)	enter text; press **Return/Enter**
4	***Password***	enter text; press **Return/Enter**
5	**cd /usr/ecs/<*MODE*>/CUSTOM/utilities**	enter text; press **Return/Enter**
6	To list files, **ls**	enter text; press **Return/Enter**
7	**EcDsQAMUT.pl <*command line parameters*>**	enter text; press **Return/Enter**
8	If an additional request is to be processed: **cp <*requestpath*> /usr/ecs/<*MODE*>/CUSTOM/utilities/QA_update_<*science/operational*>.txt**	enter text; press **Return/Enter**
9	Repeat Steps 7 and 8 as appropriate	